PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 :
C07D 487/22, A61K 31/40, C09K 19/34, G11B 7/24 // (C07D 487/22, 259:00, 221:00, 209:00, 209:00, 209:00, 209:00)

A1

(11) International Publication Number: WO 99/23096

(43) International Publication Date: 14 May 1999 (14.05.99)

(21) International Application Number: PCT/GB98/03185

(22) International Filing Date: 26 October 1998 (26.10.98)

(30) Priority Data:
9722883.7 30 October 1997 (30.10.97) GB

(71) Applicant *(for all designated States except US)*: THE SECRETARY OF STATE FOR DEFENCE [GB/GB]; Defence Evaluation & Research Agency, Ively Road, Farnborough, Hampshire GU14 0LX (GB).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: COOK, Michael, John [GB/GB]; The University of East Anglia, Norwich NR4 7TJ (GB). JAFARI-FINI, Ali [GB/GB]; 39 Dinerman Court, Boundary Road, London NW8 0HQ (GB).

(74) Agent: BOWDERY, Anthony, Oliver; D/IPR Formalities Section, Poplar 2, MOD (PE) Abbey Wood #19, Bristol BS34 8JH (GB).

(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

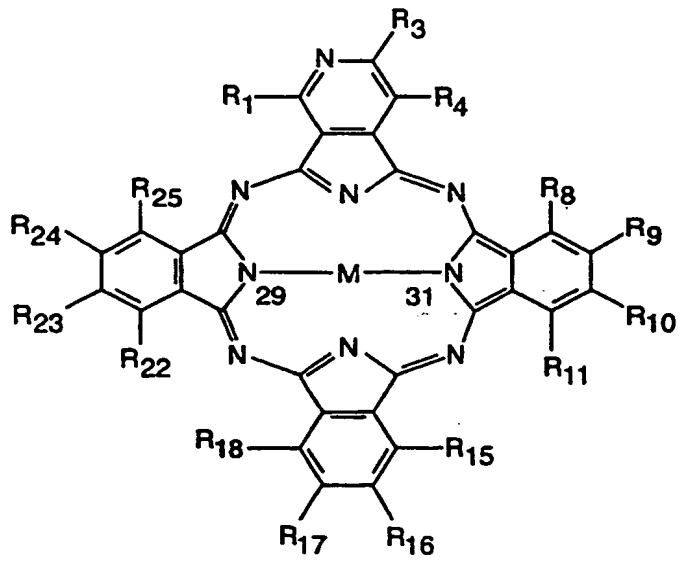
Published
*With international search report.*



(54) Title: PHTHALOCYANINE ANALOGS

(57) Abstract

Disclosed are compounds of Formula (I) as shown in Fig 1(b), wherein: M is selected from: a metal atom; a metal compound; 2H whereby one H is bonded to each of the two nitrogen atoms depicted as being bonded to M (positions 29 and 31 shown), and wherein: one or more of the Q groups is selected from: formula (II) (Fig 1(c)) or formula (III), with the remaining Q groups each being formula (IV) (Fig 1 (e)): wherein: $R_{33}$ and $R_{34}$ are independently selected from: H or methyl; $R_{35}$ is selected from: H; $C_1$ to $C_4$ alkyl; $C_2$ to $C_4$ alkenyl; methoxy; butoxy; propoxy; $NH_2$; NH-($C_1$ to $C_4$ alkyl); N-($C_1$ to $C_4$ alkyl)$_2$, S-($C_1$ to $C_4$ alkyl), each $R_n$ and $R_p$ group is independently selected from: $C_1$ to $C_{32}$ alkyl; $C_2$ to $C_{32}$ alkenyl; X-O-Y; X-phenyl; $X^2COOX^1$; $X^2CONR^1R^{11}$; H; halide, and wherein: X and $X^2$ are independently selected from: a chemical bond; $-(CH_2)_n-$ wherein n is an integer from 1 to 32; $-(CH_2)_a-CH=CH(CH_2)_b$ where a and b are independently selected from integers 0-32 and a+b totals 32, wherein $X^1$ and Y are independently selected from: $C_1$ to $C_{32}$ alkyl; $C_2$ to $C_{32}$ alkenyl; H; $R^1$ and $R^{11}$ are independently selected from: H; $C_1$ to $C_{32}$ alkyl; $C_2$ to $C_{32}$ alkenyl; $-(CH_2)_n-$; with the proviso that where more than one Q is Formula (II) with the remaining Q group being Formula (IV), at least one group independently selected from: $R_{33}$, $R_{34}$, $R_{35}$, an $R_n$ group, an $R_p$ group, is not H. Such compounds have novel properties, particularly as regards their absorption spectra, solubility, or ability to form dimers under certain conditions. Applications for such compounds are also discussed including their use in PDT, LCS, LCDs, laser addressed applications, optical recording media, sensors, Langmuir-Blodgett films, molecular wires, photonic devices, redox applications and polyelectrolytes. The compounds may be utilised in as dimers, higher oligomers or polymers.




Formula V